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AUTHOR Dimino, Joseph; Kolar, Christine
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ABSTRACT

A 9-day study based on the framing strategy investigated the effects of using frames on low-performing students' (learning disabled or Chapter 1) comprehension of social studies text. Subjects were 14 fifth-graders from a large urban school district who were reading at least one year below grade level. All lessons were designed to involve students actively. After the teacher defined the purpose of the lesson, she reviewed prior learning by asking questions and making statements that led to a discussion of the previous day's material. When students worked in cooperative groups, the teacher provided instructional support and encouragement needed to determine missing key words and to decide the placement of the information strips on the frame. Daily observations, student feedback and scores on criterion tests indicated that the superior performance of the framing students (compared to the control group) was not due to the frames alone but to the entire instructional process. The frames combined with discussion, eliciting prior knowledge and predictions, discussions, realia, cooperative learning groups, and teacher encouragement, provided the structure that the at-risk students needed to successfully comprehend content area instruction. (MG)

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The Oregon Conference Monograph

Using Frames to Improve At-Risk Students' Comprehension in the Content Areas

Joseph Dimino
Christine Kolar
Long Beach Unified School District

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Using Frames to Improve At-Risk Students' Comprehension in the Content Areas

Joseph Dimino
Christine Kolar
Long Beach Unified School District

Introduction

Students' difficulties in comprehending content area textbooks in the intermediate grades has been a major concern of reading researchers in the past decade. Their investigations have led to the conclusion that students' failure to comprehend expository text is due, in many cases, to their lack of awareness of text structures (Armbruster, Anderson, & Ostertag, 1987; Berkowitz, 1986; Idol, 1987; Lovitt, Rudsit, Jenkins, Pious, & Benedetti, 1986; McGee, 1982).

Cunningham (1984) defines text structure as "the way an author chooses to present ideas or events so as to show the differential importance of and relationship between ideas and events" (p.116). For example, in a descriptive text structure the author presents the critical attributes and/or facts about a person, event, animal, object, scientific theory, etc., in order of importance. Then, a logical connection among these ideas is made clear to promote continuity and foster comprehension. Applied researchers have reasoned that knowledge of text structures gives students a cognitive map or frame of reference that assists them in logically arranging the information in the textbook. These cognitive maps have been effective in helping students identify text structures that elicit comprehension.

Review of The Literature

Descriptive Research

One of the early studies that addressed text structure and comprehension of expository text was conducted by McGee (1982). She was interested in determining (a) if awareness of text structure was correlated with overall reading ability, and (b) whether awareness of text structure was correlated with the quality of students' recall of expository passages.

Both good and poor fifth-grade readers participated in this study. The students read two science passages containing descriptive text structures and were asked to recount the information orally. Analysis of tape recordings of their responses revealed, rather unsurprisingly, that good fifth-grade readers recalled more of the most important ideas (superordinate items) than both poor fifth-grade readers and good third-grade readers. Further analysis indicated that most of the good readers used the full text structure to formulate their recall. Recalls of majority of the poor readers contained only a portion of the text structure. These results suggest that reading ability may be a factor of text structure awareness and that this awareness improves comprehension. It appears that students who are not cognizant of text structure are unable to identify the framework that organizes text into an appropriate hierarchy of idea units. Therefore, they tend to remember more insignificant details (subordinate items) of a passage.

Research With Learning Disabled Students

Fourth, fifth, and sixth grade learning disabled students served as subjects in an investigation conducted by Darch and Carnine (1986). They were interested in seeing if visual spatial displays or graphic organizers and group study would improve literal comprehension of content area material. The visual displays consisted of "lines, arrows, and spatial arrangements that describe text content, structure, and key conceptual relationships" (p.241).

The students in the comparison group were taught identical content using textbooks and group study. After nine days of instruction, students in the visual display group scored significantly better on the daily quizzes and posttests than students who were taught via textbooks. Again, it appears that visual displays and graphic organizers provide the framework that students need to structure information. This structure helps students make

sense out the text which in turn promotes comprehension.

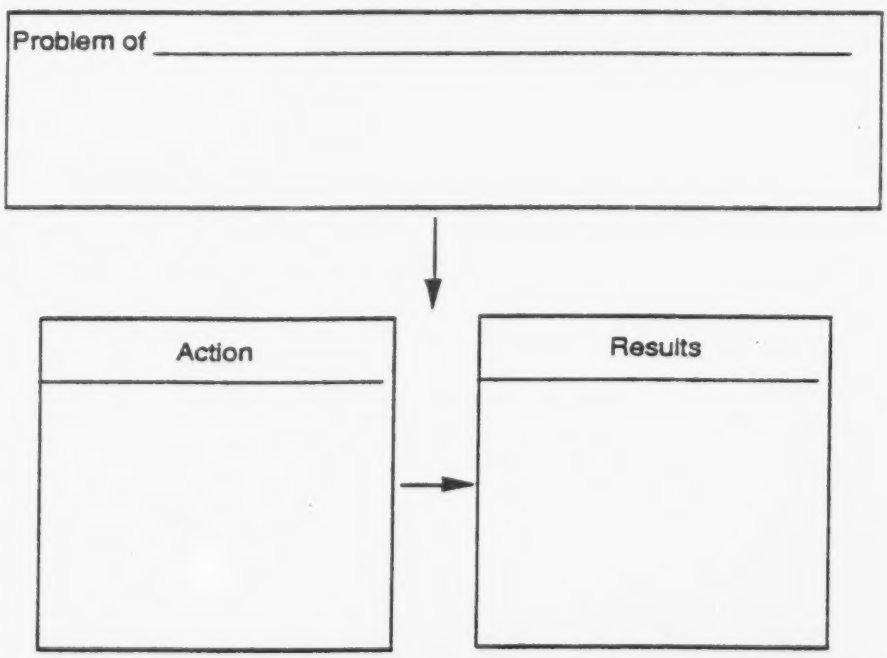
Learning disabled students participated in a study conducted by Lovitt et al. (1986) in which six chapters from a science textbook (three adapted and three nonadapted) were incorporated into regular classrooms and a resource room. The adapted materials consisted of vocabulary exercises and framed outlines similar to those used by Carnine and Darch (1986). The intervention lasted twelve weeks. After each chapter was completed, tests provided by the publisher were administered. The results indicated that both nonhandicapped and handicapped students scored better when given the outlines than when left to their own devices.

It is also interesting to note that the difference in the learning disabled students' scores on the adapted and nonadapted chapter tests was greater than those of their nonhandicapped peers. This fact supports the contention of other researchers that these instructional tools have a greater effect on students who cannot intuitively provide the structure that is needed to understand expository text.

Interventions

The purpose of Berkowitz's study (1986) was to investigate the effects of map-construction and map-study on sixth-grade students' comprehension of a social studies text. Students in the construction treatment were taught how to generate conceptual maps to graphically depict the information they read. In the other condition, the teacher developed maps for them and students used these as study guides The control students were assigned to either a question-answer group or to a group that required students to reread the text.

The students taught to construct their own maps recalled more main idea units than both the control groups and students who were asked to study maps that were developed for them. These results seem to indicate that comprehension is significantly better if students are actively involved in generating a visual representation of the text's organization.



Problem = something bad; a situation that people would like to change
Action = what people do to try to solve the problem
Results = what happens as a result of the action; the effect or outcome of trying to solve the problem

Figure 1. Problem-Solution Text Structure: Frame Definition (Ambruster, 1989)

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In a recent study conducted by Armbruster, Anderson, and Ostertag (1987), fifth-grade students received explicit instruction in identifying the components of the problem/solution text structure from a range of passages. The subjects were taught to record the pertinent information on a frame or diagram of the text structure. The frame was designed to help them graphically organize the information they read. (See Figure 1.). The students were also taught a strategy for writing summaries based on this text structure. The authors hypothesized that this combination would assist students in formulating a macrostructure that would foster comprehension and recall of similarly written social studies passages.

The results of this study indicated that students who received explicit instruction recalled significantly more main ideas on the essay test and wrote summaries containing significantly more Level 1 (most important) idea units than students who merely read the passages and answered questions.

Anderson, Armbruster, and Meyer (1989) developed an unique comprehension strategy using frames. Frames are a variation on the "instructional graphics" theme of prior studies. The frames provided students with a macrostructure to guide them in selecting and organizing superordinate and subordinate information. The result was a logical structure that enhanced oral and written comprehension of the text. The frames consisted of an incomplete outline. That is, major headings (superordinate information) were given with page numbers to help students locate the information. Information sheets were used to help students identify supporting details (subordinate information). They were developed by choosing these details from the text, omitting key words, and randomly arranging these details on the information sheet.

The students in the framing group were placed in heterogeneous cooperative learning groups. After prior knowledge and predictions were solicited from the students, each group read the text, filled in the blanks on the information sheet, cut out the squares, and decided the appropriate placement of the square on the frame. After all proposed frames were finished, a class discussion was held and the students agreed on the correct placement of the information. Then, the students taped the squares in the correct order on their frames. When instructing the comparison group,

Lesson 5: More Spaniards Come to the Americas Pages 85-87

WHY:

WHO:

With only 500 people,_____conquered the great Aztec empire. The Aztecs were fine warriors, but the Spanish had many advantages.

The Three Advantages of the Spaniards

Figure 2. Frame for Cortes' Conquest of the Aztec Empire

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Lesson 5-Information Sheet

The Spanish had guns and _____ iron armor, swords and horses.

The Spanish heard about the rich empire in North America where Mexico is today.

The _____ had never seen these things.

The Aztecs had enemies among the people they ruled. These people thought _____ would free them from having to pay taxes to the Aztec emperor, Montezuma II. So they helped the Spanish soldiers.

The Spanish rulers sent Hernando Cortes to Mexico to find gold.

Figure 3. Information Sheet for Cortes' Conquest of the Aztec Empire

teachers followed the procedures stated in the teacher's guides.

The results of these studies indicated that the framing strategy was significantly more effective for students of all ability levels than activities suggested in the social studies teacher's guides. Framing helped the students generate a text structure/macrostructure that is critical for the comprehension of expository text.

Purpose

This field study is based on the framing strategy developed by Armbruster, Anderson and Meyer (1989). The purpose of our study was to investigate the effects of using frames on low-performing students' (learning disabled and Chapter 1) comprehension of social studies text.

Method

Subjects

Fourteen fifth-graders from a large urban school district participated in this 9-day framing study. The students in the experimental group (N=7), who were identified as either learning disabled (special education) or Chapter 1, received pull-out services on a daily basis. The students in the control group (N=7) were enrolled in regular education for the entire day. Both the experimental and control groups were reading at least one year below grade level based on the Metropolitan Achievement Test (MAT). The students were identified by the regular classroom teacher as having difficulty comprehending content area textbooks.

Materials

The materials consisted of frames, information sheets, and textbooks. The frames were based on material contained in two lessons of the district-adopted fifth-grade social studies textbook, *United States* (McGraw-Hill, 1983). This book is divided into six units, which are further subdivided into chapters. Each chapter is further divided into at least five lessons. We used Lesson 4, "Europeans Find the Americas" and Lesson 5, "More Spaniards Come to the Americas," which were contained in Chapter 1.

To develop the frames, the first author read the lessons to determine superordinate and subordinate information. Then, he created a macrostructure, or frame, based on this information (See Figure 2). The poor composition and organization of the text's content made it difficult to develop one frame that would depict a conventional text structure for each lesson (Anderson & Armbruster, 1984). Therefore, two frames were developed for Lesson 4 and three frames were developed for Lesson 5.

As in the Armbruster et al. (1989) study, information sheets were developed for each frame by taking the relevant supporting details (subordinate items) from the text, and deciding which key words would be omitted. These statements were then randomly arranged on the information sheet (See Figure 3).

Procedures

Framing Instruction

At the beginning of each lesson, a large copy of the frame was displayed on the classroom wall. After reading the incomplete frame in unison with students, the teacher elicited background knowledge and predictions about the missing information. The corresponding textbook pages were read either by the teacher, a student, or in unison. Teacher-directed review of the original background knowledge/predictions allowed students to determine the accuracy of each of their responses. To enhance their comprehension of the written material, realia (i.e., pictures of explorers, a variety of spices and samples of silk) were shared.

Next, the students were divided into two groups. A copy of the frame and an envelope containing the supporting details (cut into strips) were given to the designated group leader. Cooperatively, the group set out to complete the frame. For example, when working with the frame which addressed Cortes' Conquest of the Aztec Empire (See Figure 2), the students first filled in the blanks on the information strips. With the help of the teacher or instructional aide, they decided if the statement on the strip was a "why," a "who," or an "advantage." Then, each strip was placed in the appropriate section of the frame. Throughout this process students were allowed to refer to the textbook. After both groups completed their tentative frames, the teacher led a discussion to determine the correct placement of the information strips. When a consensus was reached, the group leaders glued the information strips to the frame. Photocopies of the completed frame were distributed and students were encouraged to use them as study guides for the test.

A 10-point test was given at the end of each lesson in which questions matched those of the Chapter Review Test (i.e., matching, multiple choice, short answer). In administering the test, the teacher read each question orally. If students needed additional time or wanted to dictate answers, accommodations were made. The tests were scored by both authors.

Traditional Instruction

The procedures outlined in the teacher's guide provided a foundation for traditional social studies instruction. The teacher and students took turns reading the textbook aloud. After written responses to the review questions were completed, a class discussion was conducted to determine the correct answers.

Results

Criterion Tests

The students were administered two 10-point tests, which consisted of multiple-choice, matching, and short answer questions. Because of the limited sample size, only descriptive statistics are reported here. On Test 1, the means and standard deviations for the experimental and control groups were 6.78 (1.12) and 2.1 (1.52) respectively. On Test 2, the means and (standard deviations) for the experimental and control groups were 7.35 (1.62) and 2.9 (1.50) respectively.

Students' Perceptions of Framing Instruction

At the conclusion of the study, the experimental students were interviewed individually by the first author to determine their perceptions of the framing process. First, they were asked what they liked about the way social studies was taught using the frames. Their responses indicated that they liked the realia (pictures, spices), controlled vocabulary ("small words"), visuals ("frames/charts") and the cooperative groups. Half of the

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students mentioned that the information was easier to understand using the frames.

When asked what they did not like about the framing instruction six students replied "nothing," and one commented that the frames were hard. In response to the question, "Did the frames help you learn anything?" all students said "yes." Their reactions to, "How did the frames help?" included these statements: "Cutting and putting into frames helps me to understand; frames help you picture things in your mind, and the 'why's' and 'who's' helped."

Comparing the instructional techniques used in the framing study with those used in the regular classroom, students indicated that they preferred the framing teacher's varied reading methods (unison and individual reading) extensive use of discussion, and explanation, acceptance of everyone's ideas and use of visuals (frames).

Discussion

The purpose of this study was to investigate the effects of the framing strategy on at-risk students' comprehension of social studies text. For this field study, we modified the procedures of Armbruster et al. (1989) to meet the intensive educational needs of the subjects. Recognizing the limitations of this study (e.g., small sample size, lack of random assignment to treatment) the results appear to be in concert with Armbruster et al. (1989) where framing was more effective in fostering students' comprehension of expository text than traditional social studies instruction.

All of our lessons were designed to involve the students actively. After the teacher clearly defined the purpose of the lesson, she reviewed prior learning by asking questions and/or making statements that led to a discussion of the previous day's material. When working in cooperative groups, the teacher or aide provided the instructional support and encouragement students needed to determine the missing key words and to decide the placement of the information strips on the frame. As a result, all of the students wanted to share their group's ideas when it was time to determine the correct location of the information strips on the frame. As the intervention progressed, more key words were omitted from the information sheets. This procedure was implemented to challenge the students, maintain their involvement, and enhance comprehension by increasing their interaction with the text.

In the teacher-guided cooperative group activities, the students used higher-order thinking skills (e.g., inferences, cause and effect, and drawing conclusions) to complete the frames. For example, when completing the frame which addressed Cortes' conquest of the Aztec empire, the students read the information strips and, based on what was read in the textbook and the development of accurate background knowledge, they determined whether the sentences were "why," "who," or "advantage" statements. In this instance, students effectively assimilated the facts and drew accurate conclusions.

We were impressed by the cohesiveness and camaraderie that seemed to develop immediately among the members of the groups. The students worked cooperatively to determine the missing key words and to complete the frames. We attributed this behavior to both the affective component of the instruction and the design of the framing lessons. That is, the teacher modeled a relaxed, supportive, and non-competitive atmosphere by accepting and validating the contributions of all students. The teacher also directed students through the thinking processes that were required to complete the frames. As their confidence increased, they began to feel good about themselves. In a very short time, these low-achieving students were succeeding with textbook material that would formerly have been difficult for them to understand. This enthusiasm was reflected in their impressions of the framing instruction: "I learned more by discussion. My regular class is harder because the answers have to be completely right." "In this framing group even if you are close you get an 'A'."

This positive attitude was also reflected in the amount of time and effort that the experimental group took to complete the criterion tests. The majority of students in the experimental group spent approximately 20 minutes more on this task than did the members of the control group. Most of the students in the experimental group took the option of dictating their answers to the teacher. None of the students in the control group was interested in this option. Also, most of the students in the control group did not take time to formulate responses to the short answer questions. Consequently, there were several instances where they simply wrote "I don't know." All students in the experimental group attempted to answer every question.

Daily observations, student feedback and scores on the criterion tests seem to indicate that the superior performance of the framing students was not due to the frames alone but to the entire instructional process. That is, the frames, com-

bined with discussion, eliciting prior knowledge and predictions, discussion, realia, cooperative learning groups, and teacher encouragement, provided the structure that these at-risk students needed to successfully comprehend content area instruction.

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